Mascoma Street Bridge
Lebanon, NH
NHDOT Bridge No. 103/116
NHDOT Project No. 25821

Public Informational Meeting

March 2, 2016

New Hampshire DOT Department of Transportation

Hoyle, Tanner & Associates, Inc.

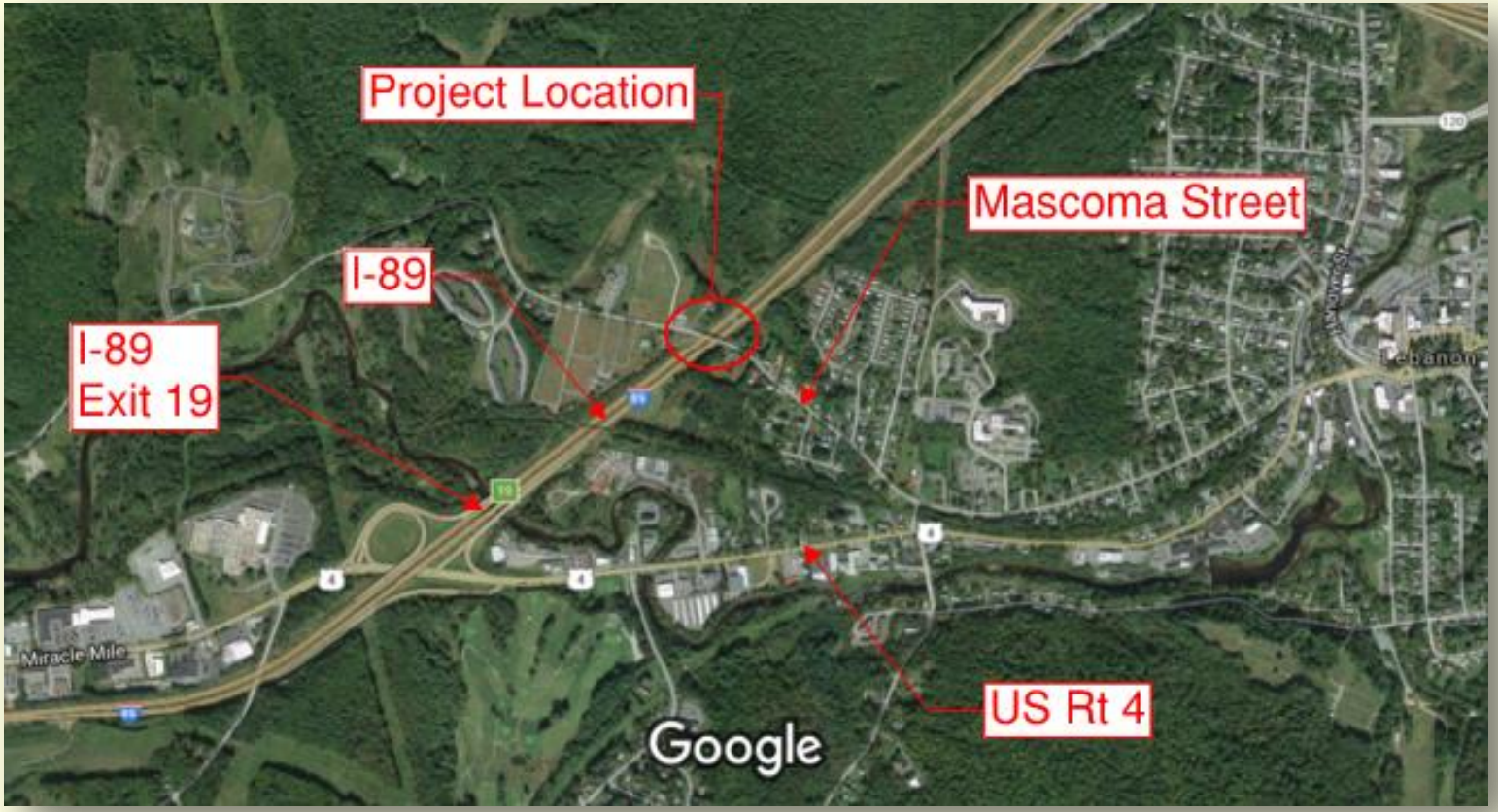
Presentation Outline

- Welcome and Introductions
- Existing Bridge
- Rehabilitation Alternatives
- Traffic Control Alternatives
- Cultural Resources
- Natural Resources

Presentation Outline

- Abutters and Right-of-Way
- Your Input is Needed
- Next Steps
- Anticipated Schedule
- Questions

Existing Bridge



Existing Bridge

- Mascoma Street Bridge over I-89
- Bridge Constructed in 1966
- Bridge Type: Rolled Steel Beams Composite with a Reinforced Concrete Deck
- Substructures: Reinforced Concrete Abutments and Pier Founded on Spread Footings
- Span Lengths: 2 at 89’-4 7/8” each
- Overall Length: 180’-0”

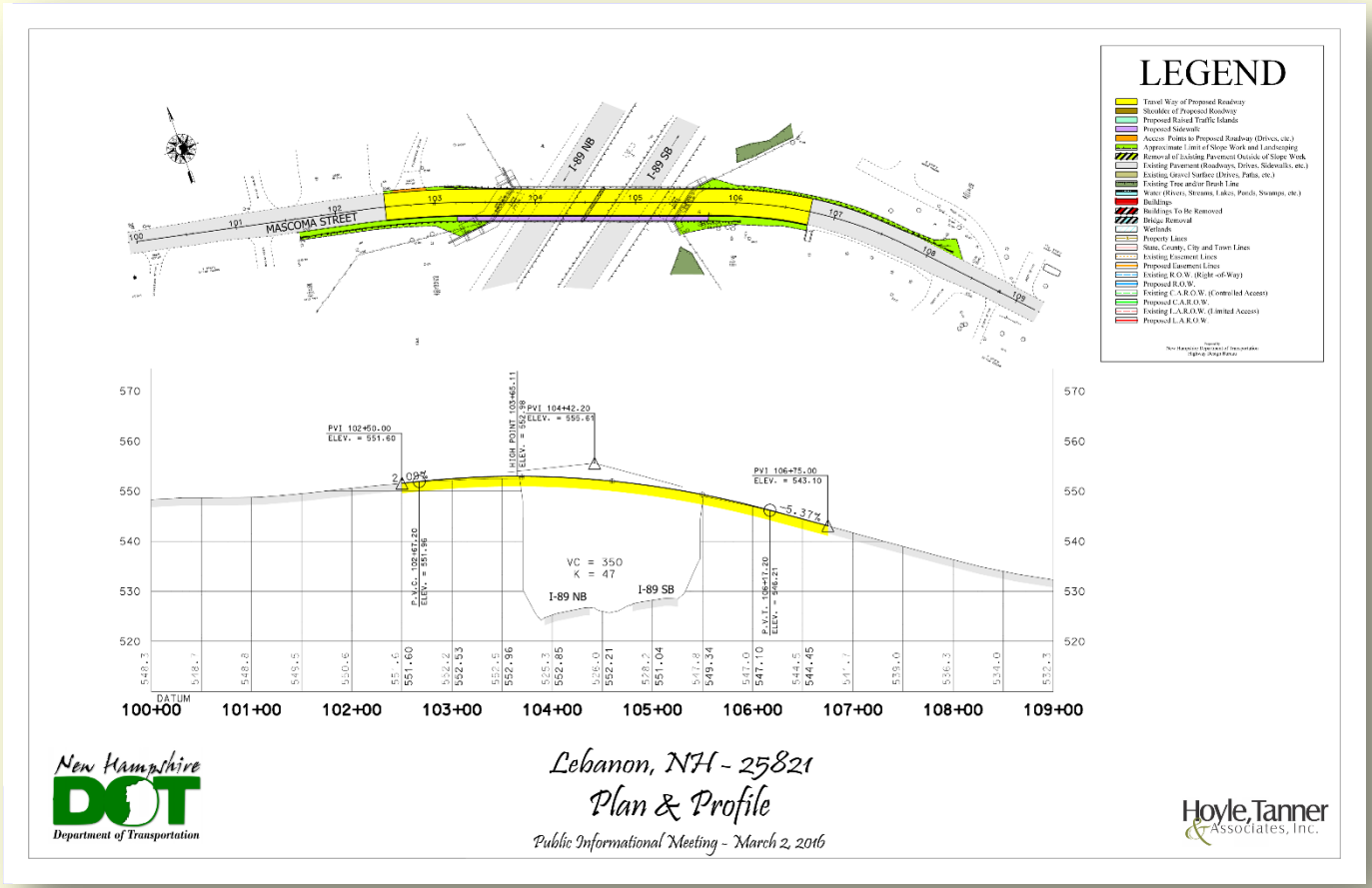
Existing Bridge

- Bridge Skew: 33°
- Overall Width: 35’-0”
  - 13’-0” Eastbound travel lane
  - 14’-0” Westbound travel lane
  - 5’-0” Sidewalk
  - 1’-9” Safety curb
- 12” Diameter Water Main Carried on Bridge

Existing Bridge

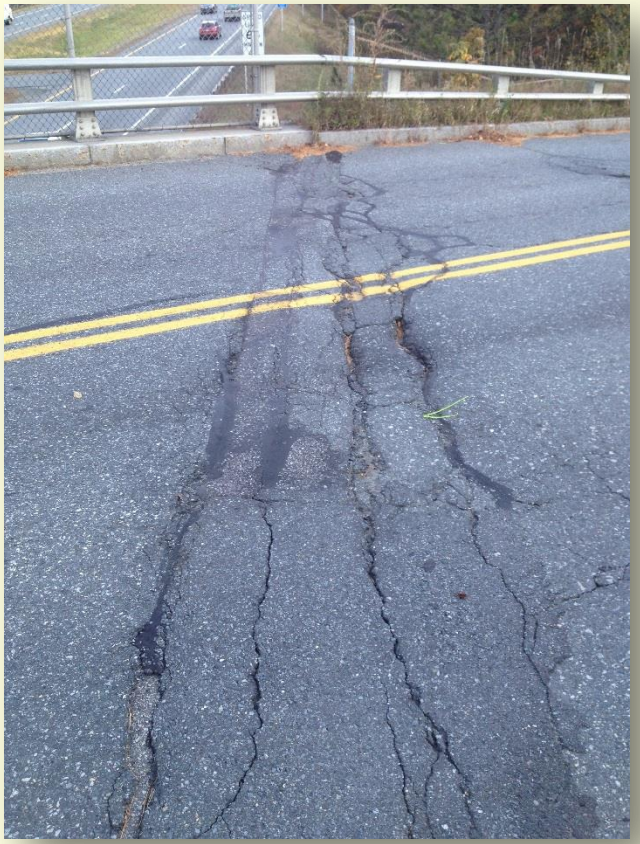
- Maintenance and Preservation in 1993
  - Abutment and pier joint replacements
  - Concrete deck repairs; partial and full depth
  - Sidewalk and brush curb reconstruction
  - Bridge rail replacement
  - Concrete overlay construction
  - Abutment backwall modifications
  - Pier concrete repairs
- On State ‘Redlist’ Due to Deck’s Poor Condition

Existing Bridge



Existing Bridge

- Asphalt Wearing Surface
  - Moderate cracking
  - Settled approaches



Existing Bridge

- Deck
  - Poor condition
  - Significant soffit spalling; netting in the west span

Existing Bridge

- Beams and Bearings
  - Good condition
  - Rusting
  - Paint system failure

Existing Bridge

- Substructure
  - Satisfactory condition
  - Some concrete spalling on backwalls and wingwalls

Rehabilitation Alternatives

- Bridge Rehabilitation Investigated Due to Condition of Deck.
- Bridge Rehabilitation Alternatives:
  - Deck Replacement
  - Superstructure Replacement

Rehabilitation Alternatives

- Deck Replacement Alternative
  - Replace deck only
  - Retain all existing structural steel (beams, diaphragms and bearings)
  - Complete paint removal and recoating
  - Eliminate deck joint at pier and create continuity between existing simple spans
  - Estimated construction cost: $1,400,000
    - Cost does not include traffic control

Rehabilitation Alternatives

- Deck Replacement Alternative
  - Pros:
    - Lower initial construction cost
    - Utility accommodation during construction not required
    - Remove bridge from State ‘Red List’
  - Cons:
    - Paint presumed to be lead based
    - Complete paint removal and recoating is required
    - Longer construction duration than Superstructure Replacement
    - Painted structural steel requires long-term maintenance, such as spot touchup every 5 years and recoating every 25 years
    - Existing beams have welds in tension zone and are susceptible to the development of fatigue cracks

Rehabilitation Alternatives

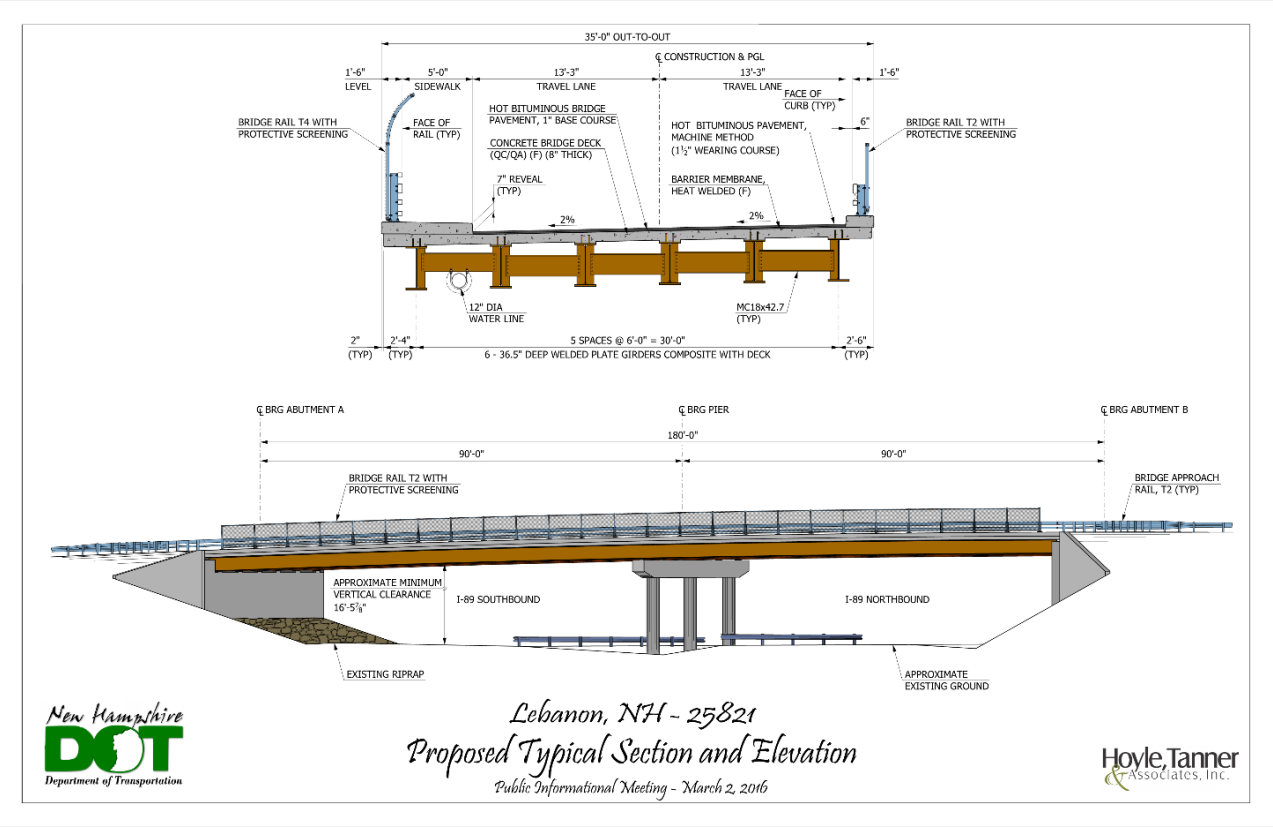
- Superstructure Replacement Alternative
  - Complete replacement of deck and structural steel (beams, diaphragms and bearings)
  - Bridge geometry to be maintained
  - Maintain vertical clearance over I-89
  - Overall structure depth to be maintained to minimize potential need for a profile raise
  - Spans will be continuous to eliminate the pier joint and utilize a more efficient structural section
  - Estimated construction cost: $1,600,000
    - Cost does not include traffic control

Rehabilitation Alternatives

- Superstructure Replacement Alternative
  - Pros:
    - Deck pier joint will be removed (Better Life Cycle detail)
    - Weathering steel beams used to increase service life and reduce long term maintenance costs
    - Remove bridge from State 'Red List'
    - Shorter construction duration than Deck Replacement
  - Cons:
    - Higher initial construction cost
    - Utility accommodation during construction required
  - Preferred Alternative due to reduced Life Cycle Cost

Rehabilitation Alternatives

- Superstructure Replacement Alternative



Traffic Control Alternatives

- Phased Construction
- Bridge Closure with Detour

Traffic Control Alternatives

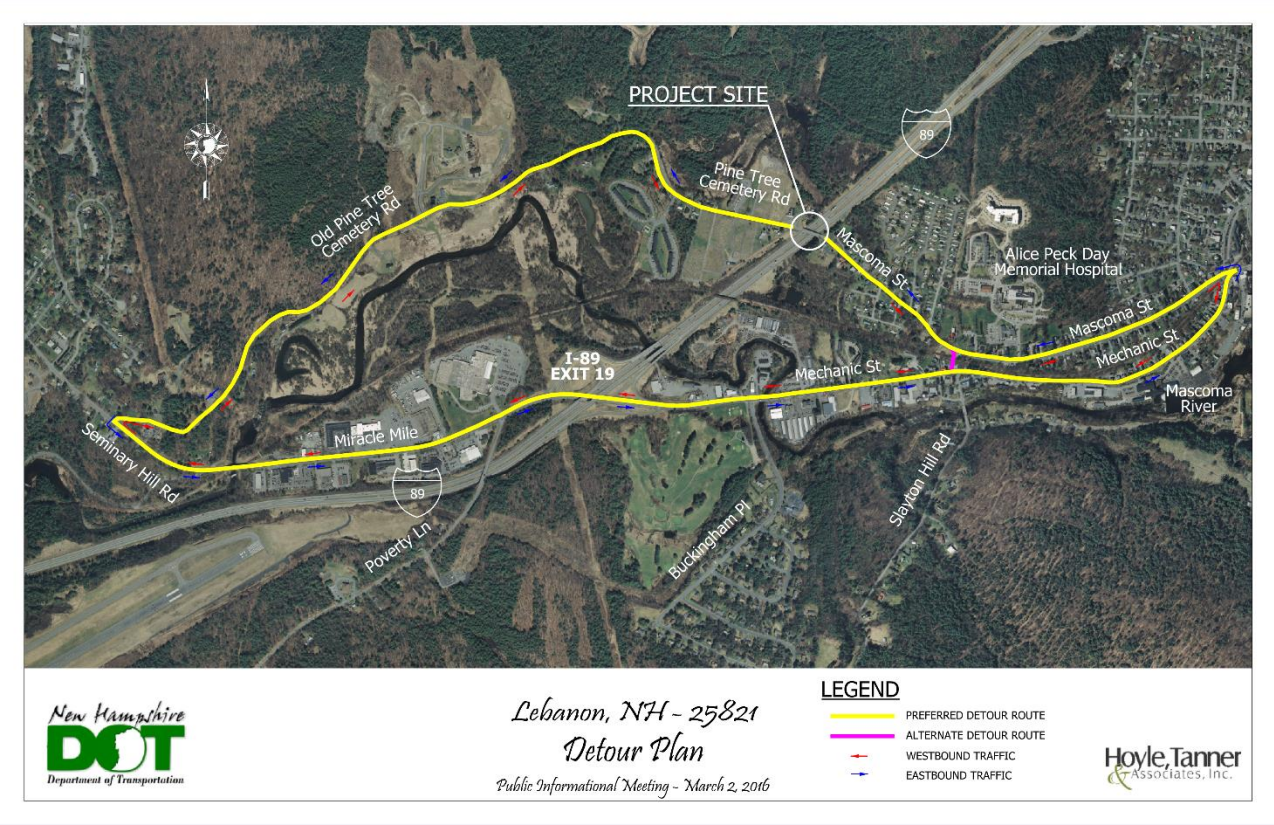
- Phased Construction
  - Utilize temporary traffic signals
  - Two phases of one lane two-way traffic
  - Expected increase in construction cost of approximately 25%
  - Longer Construction period, April to November for Superstructure Replacement
  - Increases overall timeframe of impact to traffic

Traffic Control Alternatives

- Bridge Closure with Detour
  - Detour is approximately 5 miles one side of the bridge to the other side of the bridge
  - Expected to have a 12 min travel duration
  - Vehicle limitation at narrow bridge underpass at Slayton Hill Road
  - Slight delay increase at intersections along detour route
  - Reduced construction costs and duration, mid-June to September
  - Better Life Cycle details (no construction joint in middle of deck)

Traffic Control Alternatives

- Bridge Closure with Detour



Cultural Resources

- Project Must Follow Section 106 of the National Historic Preservation Act
- Section 106 Requires Consideration of Cultural Resources, Including Historic Buildings, Structures, and Archaeological Deposits
- The NH Division of Historical Resources (NHDHR) Acts as the State Historic Preservation Office (SHPO)
  - None known

Cultural Resources

- Architectural Historian:
  - Reviews the project area to identify potentially historic buildings or structures
    - None known
- Archaeologist:
  - NHDHR will check to see there is any archaeological concerns with the anticipated project area
    - None known

Cultural Resources

- Information Reported to NHDOT and NHDHR For Technical Review and Consultation, Including a *Determination of Effect if any Cultural Resources are Found*
- Interested Persons or Organizations May Request *"Consulting Party"* Status from FHWA
  - Contact Jamie Sikora
    - (603) 401-4870
    - jamie.sikora@fhwa.dot.gov

Natural Resources

- Check Project Limits for Natural Resources

Abutters and Right-of-Way

- We Currently Do Not Anticipate Any Property Rights Needed
  - If we did, they would be temporary easements for construction access only

Your Input is Needed

- Emergency Response Routes
- Mutual Aid from/to Adjacent Towns
- School Bus Routes
- Pedestrian Traffic Designations Using the Bridge
- Other Concerns

Next Steps

- Present Findings to Cultural and Natural Resource Agencies to Get Their Input and Comments
- Complete NEPA Process (National Environmental Policy Act) for Environmental Permitting
- Develop Preliminary Plans
- Develop Contract Plan and Documents

Anticipated Schedule

- Preliminary Plans Fall 2016
- Contract Plans Winter 2017
- Advertise October 2022
- Construction starts June 2023 after closure of school to minimize bus route concerns

Questions?